

REMARKS/ARGUMENTS

Claims 1-6, 25-27, 29-39, and 41-50 are pending in the application. Claims 43-48 have been amended. Claims 1-6, 25-27, 29-39, 41, and 42 have been allowed.

The Examiner rejected Claims 43-50 under 35 U.S.C. Section 103(a) as being unpatentable over International Application WO 98/54531 A1.

Allowable Subject Matter

The Examiner allowed Claims 1-6, 25-27, 29-39, 41, and 42.

Support for amendments to the claims:

Support for the amendment of Claims 43 and 44 can be found, for example, in Figures 3 and 5 of the specification.

Support for the amendment of Claim 45 can be found, for example, on page 10, lines 19-22 of the specification.

Support for the amendment of Claim 46 can be found, for example, on page 10, line 5, and Figure 3 of the specification.

Support for the amendment of Claim 48 can be found, for example, on page 12, lines 5-6, and in Figures 3 and 5 of the specification.

WO 98/54531 A1

WO 98/54531 teaches lightweight titanium based metal heat exchangers and the use of oxidation resistance for heat exchanger components. The heat exchanger may comprise titanium, alloys of titanium, or braze clad titanium.

Claim rejections – WO 98/54531 A1, 35 U.S.C. 103(a)

Claims 43-50 were rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/54531.

Applicant's claim 43 is a product-by-process claim which depends from method claim 36. Claim 36 was allowed in the Office Action dated August 11, 2004. Applicant's claim 43 as amended includes the additional limitation that the ratio of the stress at which the coated substrate does not fail after 10^6 cycles to the yield strength of the coated substrate is at least about 0.20. This ratio is known as the fatigue ratio, which is a standard term defined by ASM. Figure 5 of Applicant's specification shows that the stress at which the coated substrate does not fail after 10^6 cycles (i.e., the fatigue limit) is 35 Ksi. Fatigue limit is also a standard term defined by ASM. Figure 3 shows the yield strength of the coated substrate as being about 150 Ksi, for a fatigue ratio of $35/155$, or about 0.226.

In contrast to applicant's claim 43 as amended, WO 98/54531 does not disclose a fatigue ratio of at least about 0.20.

Applicant submits that WO 98/54531 does not teach or suggest a coated substrate wherein the ratio of the stress at which the coated substrate does not fail after 10^6 cycles to the yield strength of the coated substrate is at least about 0.20. Accordingly, applicant's claim 43 as amended defines an invention which is unobvious over WO 98/54531.

Applicant's claim 44 as amended recites the ratio of the stress at which the coated substrate does not fail after 10^6 cycles to the yield strength of the coated substrate as being at least about 0.20. This ratio is also known as the fatigue ratio as defined by ASM.

In contrast to applicant's claim 44 as amended, WO 98/54531 does not disclose a fatigue ratio of at least about 0.20.

Applicant submits that WO 98/54531 does not teach or suggest a coated substrate wherein the ratio of the stress at which the coated substrate does not fail after 10^6 cycles to the yield strength of the coated substrate is at least about 0.20.

Furthermore, applicant's claim 44 as amended recites a layer of titanium aluminide disposed directly on a surface of the titanium-based alloy substrate, wherein the layer of titanium aluminide comprises TiAl₃.

In contrast to applicant's claim 44, WO 98/54531 does not teach or suggest a layer of titanium aluminide which comprises TiAl₃.

Accordingly, applicant's claim 44 as amended defines an invention which is unobvious over WO 98/54531.

Claims 45-47 are dependent from claim 44. Applicant submits that each of claims 45-47 define an invention which is unobvious over WO 98/54531 for at least those reasons given hereinabove with respect to claim 44.

With respect to claim 48, applicant's claim 48 as amended recites the ratio of the stress at which the coated substrate does not fail after 10^6 cycles to

the yield strength of the coated substrate (i.e., the fatigue ratio as defined by ASM) as being at least about 0.20.

In contrast to applicant's claim 48 as amended, WO 98/54531 does not teach or suggest a fatigue ratio of at least about 0.20.

Applicant submits that WO 98/54531 does not teach or suggest a coated substrate wherein the ratio of the stress at which the coated substrate does not fail after 10^6 cycles to the yield strength of the coated substrate is at least about 0.20.

Furthermore, applicant's claim 48 as amended recites a layer of titanium aluminide disposed directly on a surface of the titanium-based alloy substrate, wherein the layer of titanium aluminide comprises TiAl₃.

In contrast to applicant's claim 48, WO 98/54531 does not teach or suggest a layer of titanium aluminide which comprises TiAl₃.

Accordingly, applicant's claim 48 as amended defines an invention which is unobvious over WO 98/54531.

Claim 49 and 50 are dependent from claim 48. Applicant submits that each of claims 49 and 50 define an invention which is unobvious over WO 98/54531 for at least those reasons given hereinabove with respect to claim 48.

CONCLUSION

Applicant respectfully requests entry of the above amendments to claims 43-46 and 48 in response to the Final Office Action dated August 11, 2004. Applicant submits that the claims are now in condition for allowance.

Reconsideration and withdrawal of the Office Action with respect to Claims 43-50 are requested.

In the event the examiner wishes to discuss any aspect of this response, please contact the attorney at the telephone number identified below.

Respectfully submitted,

By:

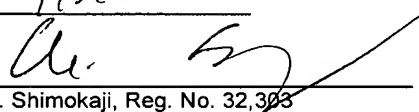


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